

CLAIMS

1 1. A storage medium containing program instructions readable by a computer for
2 detecting and resolving circular flow paths disposed within a flow diagram representing
3 the logical operation of a corresponding application program, the flow diagram formed
4 by interconnecting a plurality of symbolic representations of program objects, the pro-
5 gram objects configured to execute associated functions in response to corresponding
6 triggering events, the readable program instructions comprising program instructions for:
7 establishing a busy indicator at a given program object, the busy indicator signi-
8 fying whether the given program object is currently executing its associated function;
9 in response to the occurrence of the given program object's triggering event,
10 testing the respective busy indicator;
11 if the busy indicator signifies that the given program object is currently executing,
12 blocking the given program object from re-executing in response to the triggering event;
13 if the busy indicator signifies that the given program object is not currently exe-
14 cuting, permitting the given program object to execute in response to the triggering event.

1 2. The storage medium of claim 1 wherein the busy indicator is a counter and the
2 program instructions for testing comprise program instructions for:
3 adjusting the counter; and
4 after the program instructions for adjusting, determining whether the counter ex-
5 ceeds a predetermined threshold,
6 wherein an exceedance of the predetermined threshold signifies that the given program
7 object is currently executing.

1 3. The storage medium of claim 2 further comprising program instructions for
2 initializing the counter to a null value, and wherein the program instructions for adjusting
3 comprise program instructions for incrementing the counter.

1 4. The storage medium of claim 3 further comprising program instructions for,
2 after the program instructions for determining whether the counter exceeds a predeter-
3 mined threshold, decrementing the counter.

1 5. The storage medium of claim 4 wherein the program instructions for incre-
2 menting the counter increment the counter by 1, the program instructions for decrement-
3 ing the counter decrement the counter by 1, and the predetermined threshold is 1.

1 6. The storage medium of claim 4 wherein the given program object includes one
2 or more output properties having corresponding values that may be changed in response
3 to execution of the given program object's associated function and, during execution, the
4 given program object is configured to issue at least one ready event upon changing the
5 values of its one or more output properties and one or more program objects may register
6 for notification of the at least one ready event, further wherein the program instructions
7 for decrementing the counter occur after all of the registered objects have been notified of
8 the given object's at least one ready event.

1 7. A program object configured to execute an associated function in response to a
2 triggering event, the program object used in developing an application program whose
3 logical operation is represented by a corresponding flow diagram, the program object
4 having program instructions for detecting and resolving circular flow paths disposed
5 within the flow diagram, the program instructions comprising program instructions for:
6 establishing a busy indicator at the program object, the busy indicator signifying
7 whether the program object is currently executing its associated function;
8 in response to an occurrence of the program object's triggering event, testing the
9 busy indicator;
10 if the busy indicator signifies that the program object is currently executing,
11 blocking the program object from re-executing in response to the triggering event;
12 if the busy indicator signifies that the program object is not currently executing,
13 permitting the program object to execute in response to the triggering event.

1 8. The program object of claim 7 wherein the busy indicator is a counter and the
2 program instructions for testing comprise program instructions for:
3 adjusting the counter; and
4 after the program instructions for adjusting, determining whether the counter ex-
5 ceeds a predetermined threshold,
6 wherein an exceedance of the predetermined threshold signifies that the program object is
7 currently executing.

1 9. The program object of claim 8 further comprising program instructions for ini-
2 tializing the counter to a null value, and wherein the program instructions for adjusting
3 comprise program instructions for incrementing the counter.

1 10. The program object of claim 9 further comprising program instructions for,
2 after the program instructions for determining whether the counter exceeds a predeter-
3 mined threshold, decrementing the counter.

1 11. The program object of claim 10 wherein the program instructions for incre-
2 menting the counter increment the counter by 1, the program instructions for decrement-
3 ing the counter decrement the counter by 1, and the predetermined threshold is 1.

1 12. The program object of claim 10 wherein the program object includes one or
2 more output properties having corresponding values that may be changed in response to
3 execution of its associated function and, during execution, the program object is config-
4 ured to issue at least one ready event upon changing the values of its one or more output
5 properties and one or more other program objects within the application program may
6 register for notification of the at least one ready event, further wherein the program in-
7 structions for decrementing the counter occur after all of the registered objects have been
8 notified of the given object's at least one ready event.